HIGH END SIDM PRINTING: SURVIVING THE CHALLENGE

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(Slide 1 Notes)

INTRODUCTION

Welcome and thanks for attending.

Today's topic is relevant to all legacy printer manufacturers, as it centers on Serial Impact Dot Matrix technology, the undisputed leader in our industry for the last two decades. We'll discuss the role SIDM technology could still play in a market moving rapidly toward non-impact technologies.

The conventional advice to an SIDM printer supplier would be straightforward: "Divest – or simple capitalize on current investments - and move decisively toward cutting-edge non-impact technologies.

Compuprint, the Group Bull division market leader in the European high-end segment of SIDM printers, has also been investing since mid '80s in laser printers, particularly in the workgroup segment.

Concurrently, two years ago we began developing an entirely new family of mid-to high-end SIDM printers, purpose-driven by a specific business mission: provide unique leading-edge solution for the consolidating but highly resilient market segment of SIDM technology,

Today, we disclose the logic behind that decision: the market shift, the customer need, the gap we identified ... and our "VEGA response".

HIGH END SIDM PRINTING: SURVIVING THE CHALLENGE

- THE MARKET SCENARIO
- THE CHALLENGE
- AN INNOVATIVE APPROACH

(Slide 2 Notes)

AGENDA

We'll start with an overview of printer market trends, with a focus on high-end SIDM products and on how customers are using them today.

We'll then move to the strategic decision-making process, taking into account the competition scenario.

Finally, we'll describe the approach we chose to address this challenge — and to win it.

• THE MARKET SCENARIO

(Slide 3 Notes)

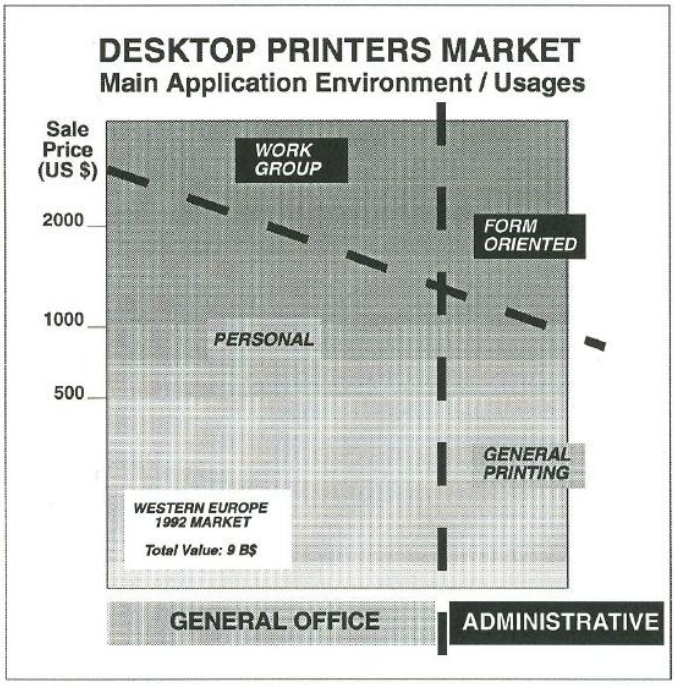
MARKET SCENARIO

The desktop printer market is conventionally analyzed by segmenting product technologies and quantifying them via unit shipments.

This methodological framework effectively highlights adoption patterns within the entry-level landscape.

To accurately reflect the market landscape, we require an advanced analytical framework, such as one that quantifies segments by shipped value.

DESK TOP PRINTERS - MARKET SCENARIO



GROWING MARKET for GENERAL OFFICE APPLICATIONS ↗

STABLE MARKET for ADMINISTRATIVE APPLICATIONS →

(Slide 4 Notes)

DESKTOP PRINTERS

This chart shows the global market VALUE across the two main application environments for desktop printers: GENERAL OFFICE PRINTING and ADMINISTRATIVE PRINTING.

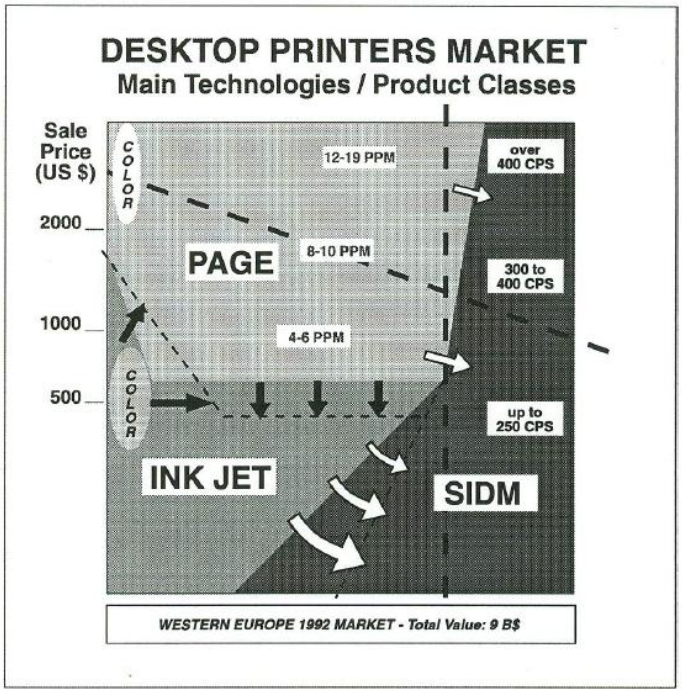
The value of general office printers market continues to expand:

- *The small office and home office demand remains far from saturation.*
- *In the mid-range office market, improved capabilities such as grayscale and color printing are delivering stronger value for money.*
- *Shared workgroup printers are expanding with the PC LAN market, reducing demand for personal printers and increasingly competing with copiers.*

The market of administrative printing has reached a more stable phase, as the economic recession cycle appears to be easing.

However, no significant growth is expected, as no major new applications are emerging and the transition from centralized to decentralized printing has largely been completed.

DESK TOP PRINTERS - TECHNOLOGIES



WHICH FUTURE for S.I.D.M.

?

(Slide 5 Notes)

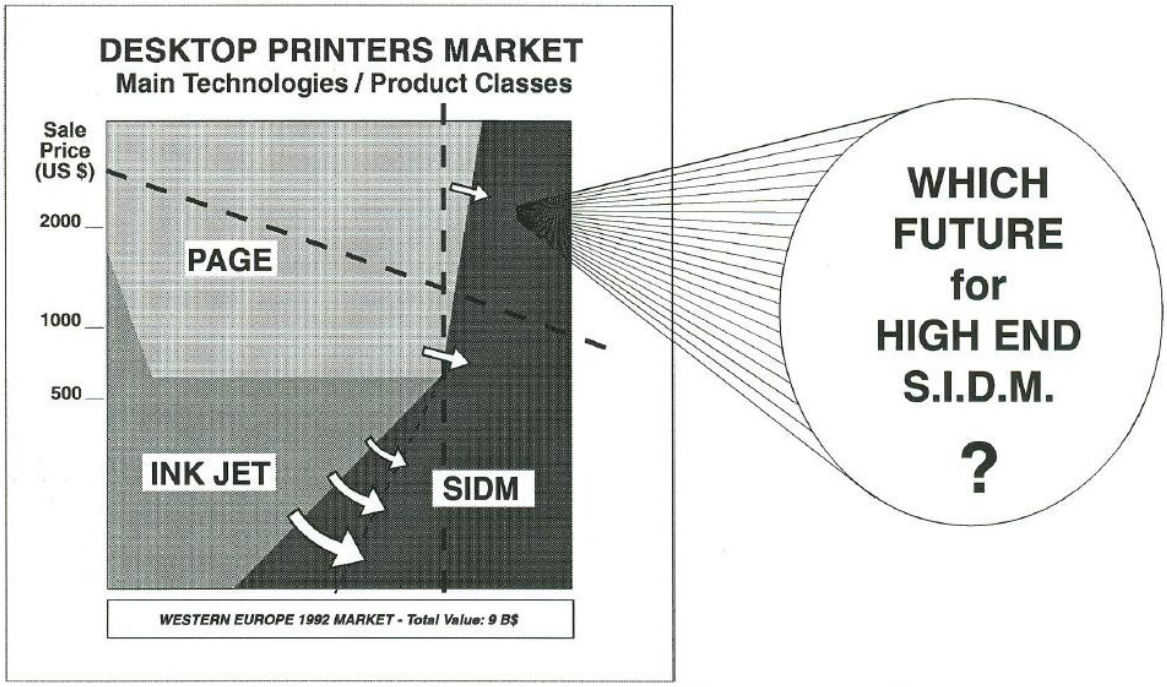
TECHNOLOGY AND POSITIONING

Furthermore, this framework facilitates a deeper understanding of current technological positioning, as well as the likely trajectory of SIDM erosion over the decade.

In the general office market, SIDM technology still has a significant presence, which means that a substantial erosion cycle will likely continue to occur in favor of ink-jet and laser technologies.

In the administrative environment, however, the erosion process has been limited and has primarily affected the top segment, mainly in favor of laser printers.

HIGH END S.I.D.M. MARKET



(Slide 6 Notes)

HIGH-END SIDM FUTURE

In such a context, the key question simply becomes:

Which future for SIDM?

Or, more specifically, looking to applications maturity,

WILL LASER PRINTERS FURTHER ERODE THE HIGH-END SIDM MARKET?

HIGH END S.I.D.M. - WHY ?

A BULL COMPUPRINT SURVEY
ON 50 U.S. USERS OF 400+ CPS SIDMs

→ ***PURCHASING REASONS***

1st - OVERALL COSTS

2nd - FORM CAPABILITIES

⇨ ***14% WOULD CONSIDER A LASER PRINTER FOR THE FUTURE***

(Slide 7 Notes)

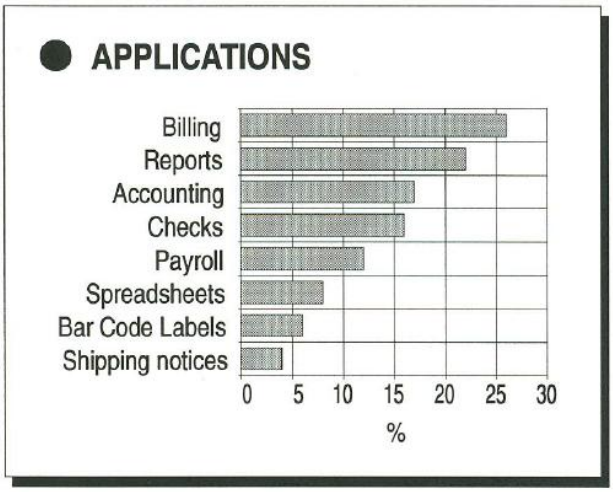
PURCHASE DRIVERS

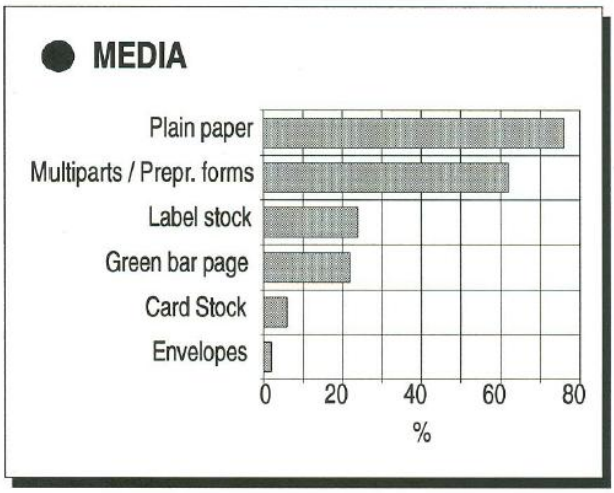
To answer the question, in 1991 we committed to an independent consulting firm a survey of high-end SIDM users in the United States.

Research confirmed that the large majority of users is not considering switching to laser technology, mainly because of cost per page gap and existing form-based applications: the erosion of high-end SIDM by laser products could be considered largely complete.

HIGH END S.I.D.M. PRINTING - WHAT?

A BULL COMPUPRINT SURVEY ON 50 U.S. USERS OF 400+ CPS SIDMs





(Slide 8 Notes)

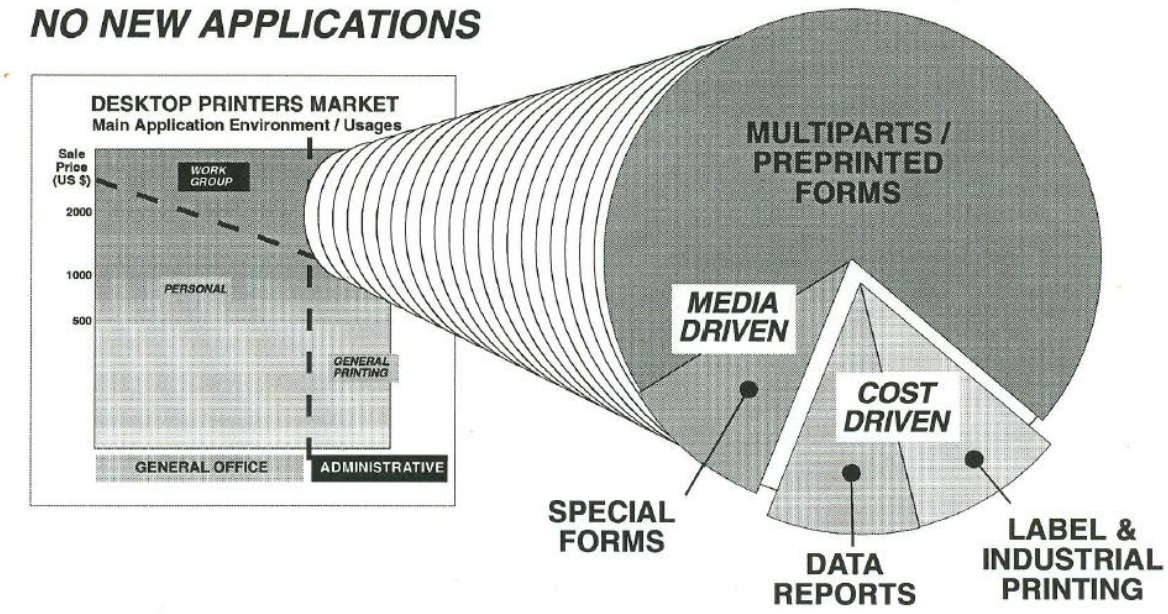
APPLICATIONS (1)

This slide summarizes the key findings on the application mix. It explains why most users do not consider laser printers a practical replacement for the applications currently served by high-end SIDM printers.

As shown on the left side of the slide, typical office printing applications are no longer present, confirming that by beginning of '90s high-end SIDM had already been fully phased out of general office applications.

The range of media shown on the right side clearly explains why SIDM printers are better suited to typical administrative printing requirements.

HIGH END S.I.D.M. - THE DRIVING APPLICATIONS



(Slide 9 Notes)

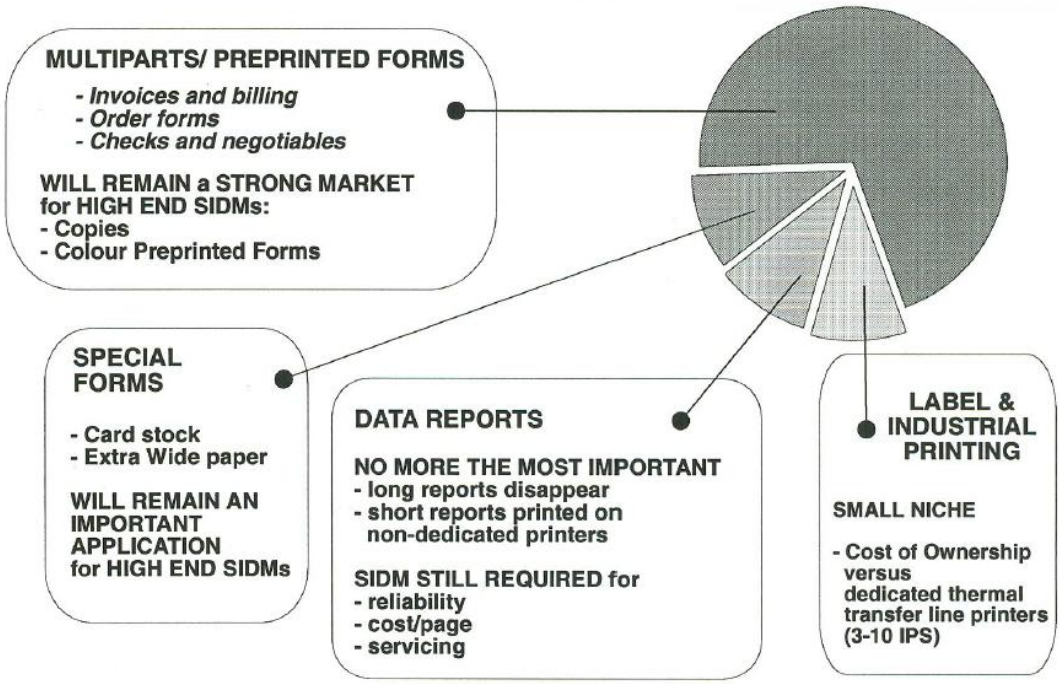
APPLICATIONS (2)

The main reason customers choose SIDM is the need to print multipart and pre-printed forms. In principle, pre-printed form applications could be migrated to laser printers; however, the current use of copies and colored pre-printed forms makes this difficult without a major redesign of the application package and user procedures.

Data report printing remains a significant component of the high-end SIDM application mix. These printers were originally selected for their forms-handling capabilities. This matters because customers still need to run different paper types on the same printer. Moreover, data report printing increases print volumes, making continuous-form SIDM printers attractive thanks to their low cost per page.

Dedicated label printing is usually performed on high-speed direct thermal and thermal transfer printers. However, dedicated label printing on SIDM remains an attractive niche for applications requiring wider labels, such as shipping labels, where thermal printing is too expensive in terms of cost per page.

HIGH END S.I.D.M. - THE DRIVING APPLICATIONS



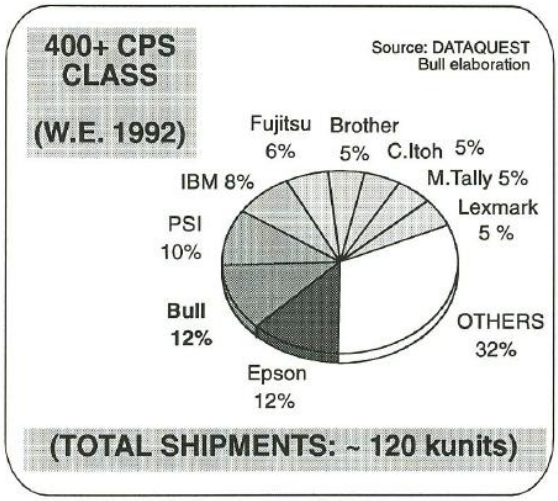
(Slide 10 Notes)

APPLICATIONS (3)

When looking ahead:

- *Invoices and billing, order forms, and similar documents will remain the core applications for SIDM printers because they require pre-printed, multi-copies colored forms and therefore cannot be easily migrated to a laser printer environment.*
- *Special paper stock printing, such as extra-wide forms, is another area where SIDM forms capability and flexibility will continue to provide value.*
- *Dedicated data report printing will become a less decisive purchase driver; however, for SIDM users it will remain an important secondary printing workload.*
- *The label-printing niche will also remain relevant, driven by low cost per page and by the adaptability of SIDM printers to factory-floor environments.*

HIGH END S.I.D.M. - THE FRAGMENTED INDUSTRY OFFER



MORE THAN 14 MANUFACTURERS

6 VENDORS TO SERVE 50% OF THE MARKET



(Slide 11 Notes)

CURRENT PRODUCT OFFERING

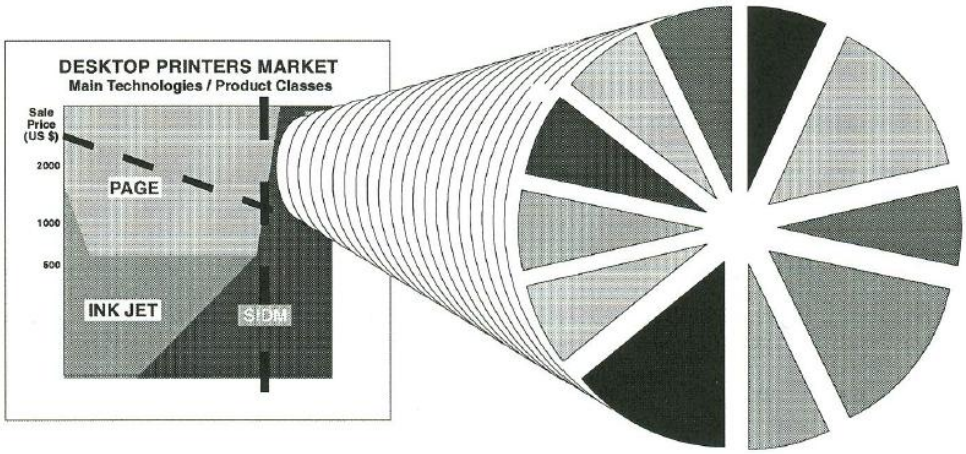
The high-end SIDM segment is typically defined by speeds above 400 cps.

A multitude of established, legacy manufacturers share this market.

Within this mature landscape, product portfolios remain highly fragmented—largely driven by historical design choices and highly specific customer requirements.

This fragmentation has resulted in a wide variety of paper-handling mechanisms and specialized forms capabilities. Furthermore, the long-standing reliance on numerous proprietary interface types has contributed to the diverse supplier ecosystem seen today.

HIGH END S.I.D.M. MARKET



MATURE

NO NEW APPLICATIONS

NEGATIVE GROWTH RATE

&

FRAGMENTED

DIFFERENT APPROACHES

MANY VENDORS

(Slide 12 Notes)

MARKET ASSESSMENT

Summarizing the findings, our final assessment is that the high-end SIDM segment is today:

- ✓ *MATURE, not expected to grow in the Western market, but neither to be displaced by other printing technologies in the next decade.*
- ✓ *FRAGMENTED, from both a product and supply perspective, primarily for historical reasons.*

HIGH END S.I.D.M. MARKET

THE MANUFACTURER DILEMMA



(Slide 13 Notes)

THE PRODUCER OPTIONS

This creates a clear dilemma for every SIDM printer Western producer!

They can decide – and most of them will do - for the safest strategy: DIVEST.

The major of them will most likely adopt a less drastic strategy, moving to a MAINTAIN strategy, reinforced through OEM or private label solutions.

A third choice is to INVEST – at own risk - to take advantage from the evolution of the resulting STABLE, FRAGMENTED and CONSOLIDATING market.

- **THE CHALLENGE**

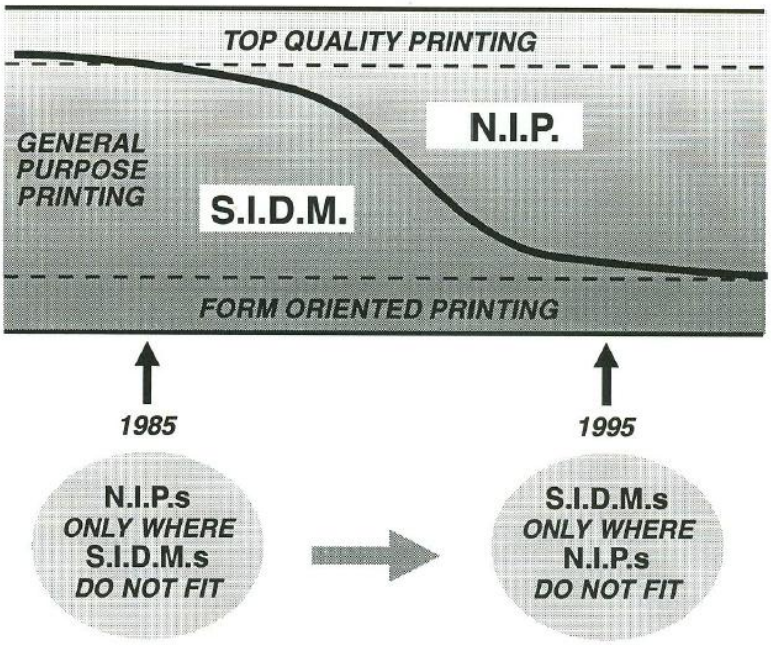
(Slide 14 Notes)

THE CHALLENGE

Overcoming this challenge means going beyond traditional methods.

It demands a superior ability to serve the requirements of the resilient SIDM market, while simultaneously providing solutions for the full spectrum of product variants.

THE S.I.D.M. FUTURE



(Slide 15 Notes)

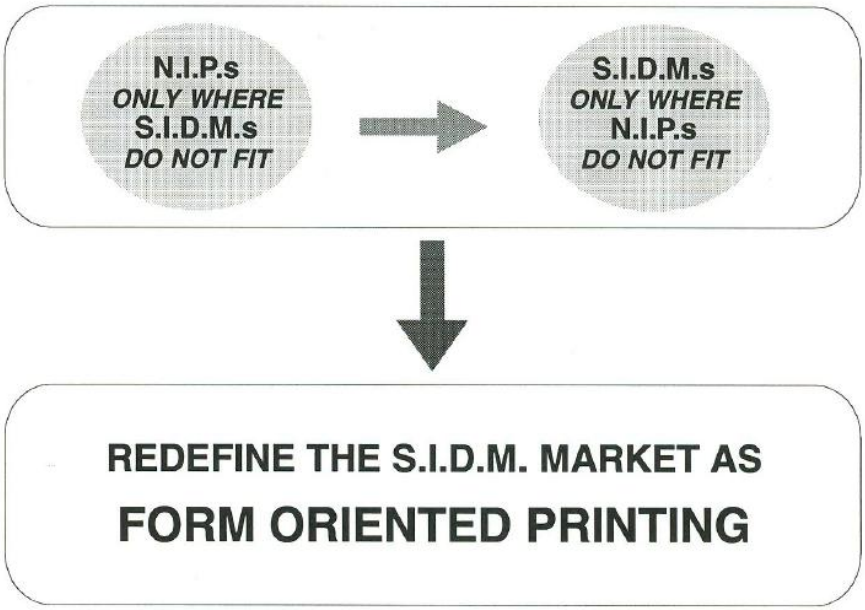
SIDM PRINTER FUTURE

The SIDM printer usage can be summarized trough a “paradigm shift”:

In 1985, non-impact printers were used only where SIDM printers did not fit the application.

By 1995, SIDM printers will be used only where non-impact printers did not fit the application.

THE S.I.D.M. FUTURE



(Slide 16 Notes)

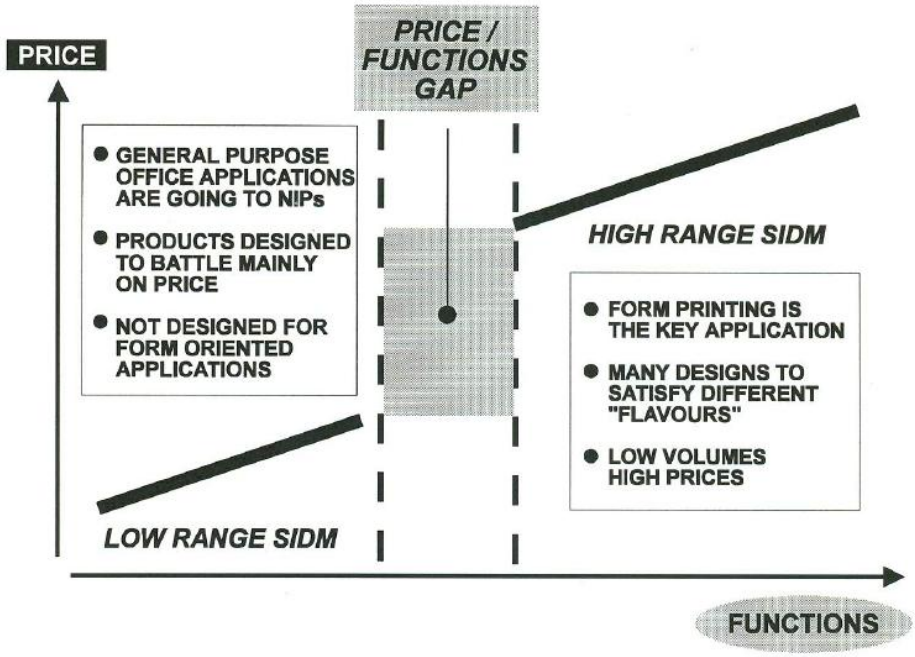
REDEFINE THE SIDM MARKET

In essence, future SIDM printers must be optimized to excel within their resilient market segment: forms-oriented printing market.

They will pivot away from general office printing, aside from limited legacy applications.

Together, these statements clearly define the new product functional requirements and design trade-offs.

FORM ORIENTED PRINTING



(Slide 17 Notes)

PRICE/FUNCTION GAP

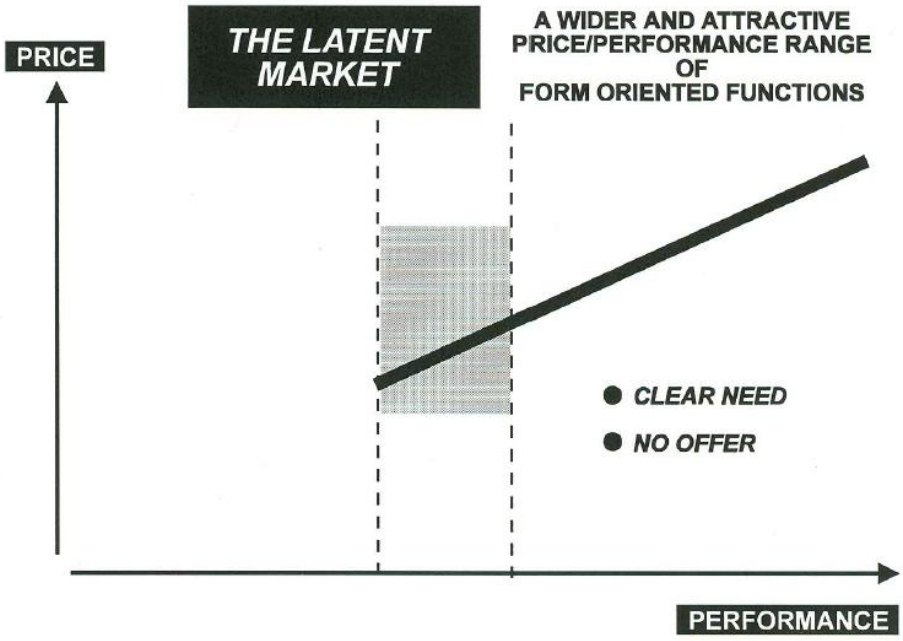
Analysis of current SIDM printer functionalities highlights a clear price/function gap in the SIDM printing products offer.

Historically, low-speed SIDM printers were designed focusing the general-purpose office market, where products competed mainly on price and actual forms-handling capabilities were less critical.

As a result, products with adequate form-oriented features are currently available only at a high price premium, creating the price/function gap shown in this chart.

Another wide gap currently exists between top speed SIDM printers and the entry Line Impact Printers.

FORM ORIENTED PRINTING



(Slide 18 Notes)

THE LATENT MARKET OPPORTUNITY

The existing market gaps presents a significant growth opportunity: a new, form-oriented product family could successfully target a broader price range than traditional premium SIDM offerings.

A new, form-oriented product family could successfully target a broader price range than traditional premium SIDM offerings.

Consequently, the strategic objective is to address also this price-to-functionality gaps by introducing a cohesive, form-driven SIDM portfolio optimized for price and performance. This will further strengthen core SIDM purchase drivers and expand market reach.

THE CHALLENGE

SERVE THE

FORM ORIENTED PRINTING

LATENT MARKET

(Slide 19 Notes)

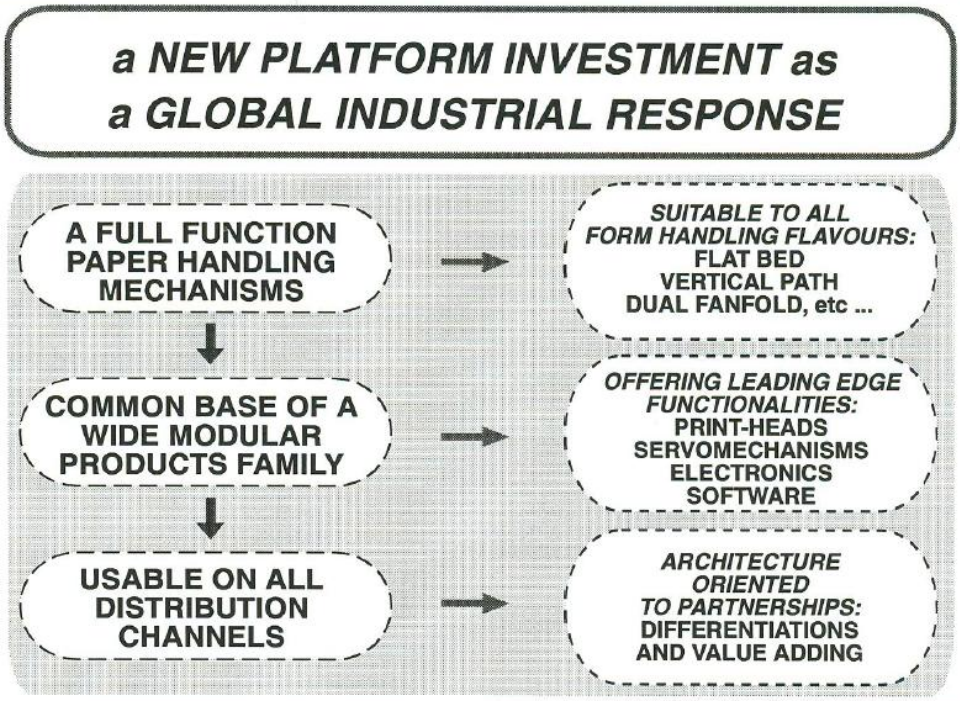
THE NEW PRODUCT FAMILY MISSION

With a complete understanding of the challenge and opportunities, Compuprint could establish the new product mission of its SIDM portfolio: serve the form-oriented printing latent market.

Commercially, the objective is to capture a dominant position within this broader—and less saturated—market segment, successfully expanding beyond the limitations of the traditional high-end SIDM sector.

However, defining this mission was only the initial step. The most demanding phase of the execution still layed ahead.

FORM ORIENTED PRINTING MARKET



(Slide 20 Notes)

STRATEGIC RESPONSE

Accomplishing such a mission required a global industrial response, based on a new platform investment, allowing the development of a scalable family of products:

- *suitable to all form handling flavors (a unique full function mechanism),*
- *offering leading egde full-range functionalities (printheads, servos, electronics, software)*
- *on an architecture oriented to partnerships (commercial and technical).*

- **AN INNOVATIVE APPROACH**

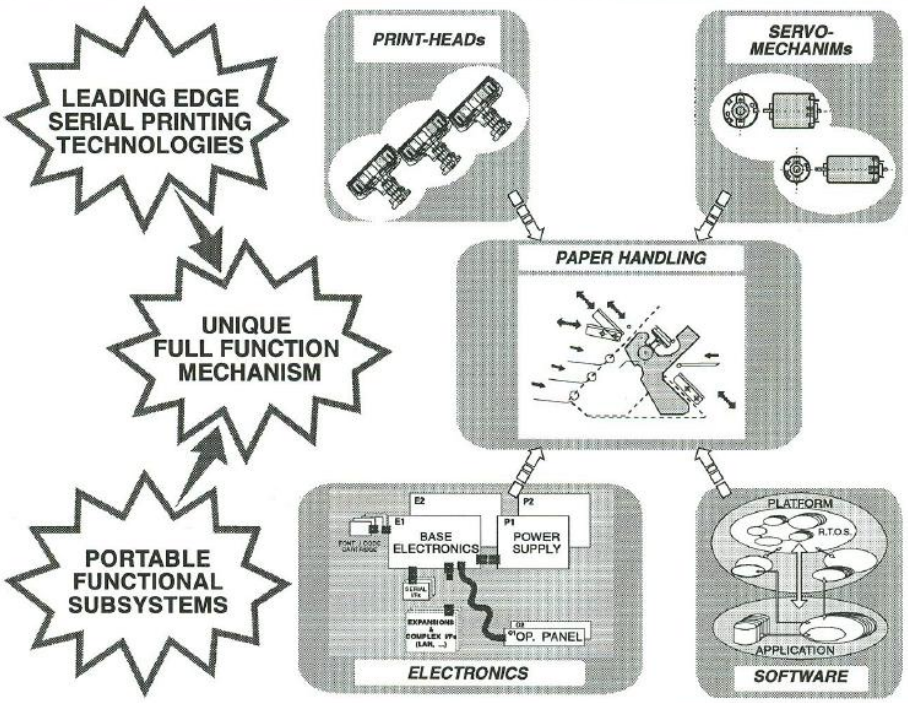
(Slide 21 Notes)

DEVELOPMENT APPROACH

Of course, the product solution was not straightforward.

It required an innovative approach, and that approach had to be built directly into the development process.

AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE



(Slide 22 Notes)

ARCHITECTURE

The result was VEGA: a modular product architecture, centered on a market-unique full-function form-oriented mechanism, that can be equipped with any of a complete set of scalable print-heads and configured through portable functional subsystems (servos, hardware and software).

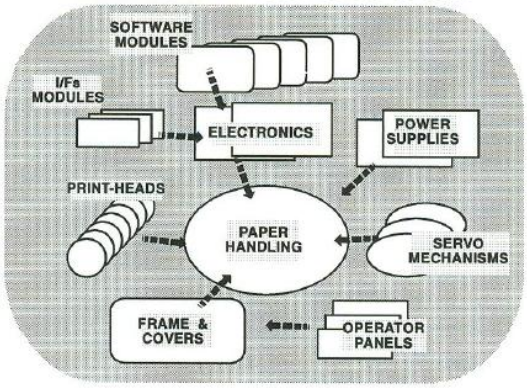
AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE

A NEW LEVEL OF MODULARITY

MODELS SUBSYSTEMS MATRIX

	Mod L-9	Mod M-9	Mod L-24	Mod M-24	Mod H-24	Mod H-18	Mod T-18
SOFTWARE	S1	S1	S1	S1	S1	S1	S1
OPERATOR PANEL	O0	O0	O1	O1	O2	O1	O2
ELECTRONICS	E1	E1	E1	E1	E2	E2	E2
POWER SUPPLY	P0	P1	P1	P1	P2	P2	P2
PRINT-HEAD	T1	T2	T3	T4	T5	T6	T7
SERVO MECHANISMS	A1	A2	A1	A2	A3	A2	A3
PAPER HANDLING	H1	H2	H1	H2	H2	H2	H2
FRAME	C1	C1	C1	C1	C1	C1	C1

FUNCTIONAL SUBSYSTEMS



SUBSYSTEMS INTERFACES → ARCHITECTURAL TECHNOLOGICAL PHYSICAL

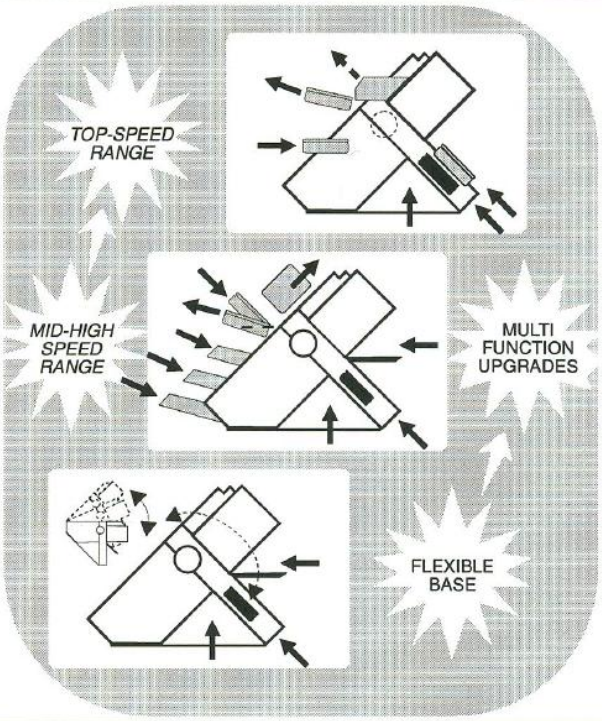
(Slide 23 Notes)

MODULAR ARCHITECTURE

We extended the software-derived concept of modular design to every technological subsystem within our product's architecture, establishing a highly scalable framework by adapting/decoupling technological subsystems.

This architectural decoupling was critical to balancing cost and performance targets, and bringing customized versions to market quickly

AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE



A NEW FULL FUNCTION PAPER HANDLING MECHANISM

COMMON TO DIFFERENT FUNCTIONS AND SPEEDS

ARCHITECTURAL DESIGN for UPGRADING and PERSONALIZATION

TECHNOLOGICAL SOLUTIONS for RE-USABILITY and DERIVATIONS

(Slide 24 Notes)

PAPER HANDLING

VEGA products adopt a simple, robust mechanism designed for reliable handling of multiple paper types.

Users can configure the printer for front or rear feeding and for push or pull paper paths.

The printer can also be used in a rotated configuration when document-on-demand printing is required.

The same architecture can support up to three optional cut-sheet input bins and two continuous-form paths.

A tandem push-and-pull tractor configuration can also be provided.

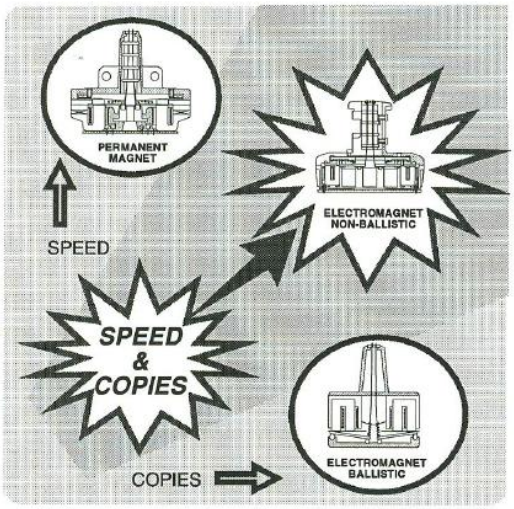
This ensures reliable, high-speed feeding even for rigid continuous forms.

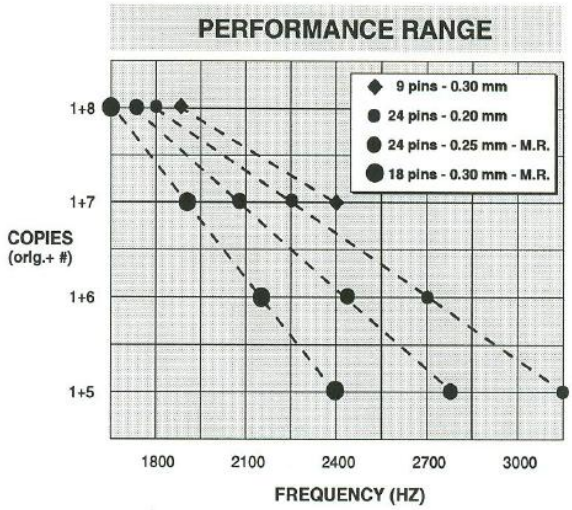
Materials, dimensions, and cover-set design were also selected to simplify the development of customized models.

AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE

A NEW PRINT-HEADS FAMILY

9-18-24 PINS
IMPROVED
COST / PERFORMANCE





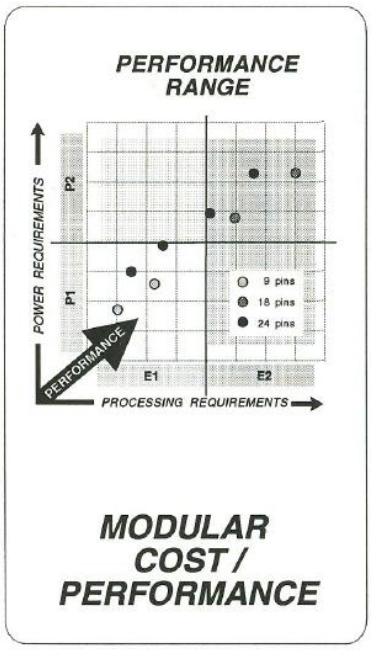
(Slide 25 Notes)

PRINT HEADS

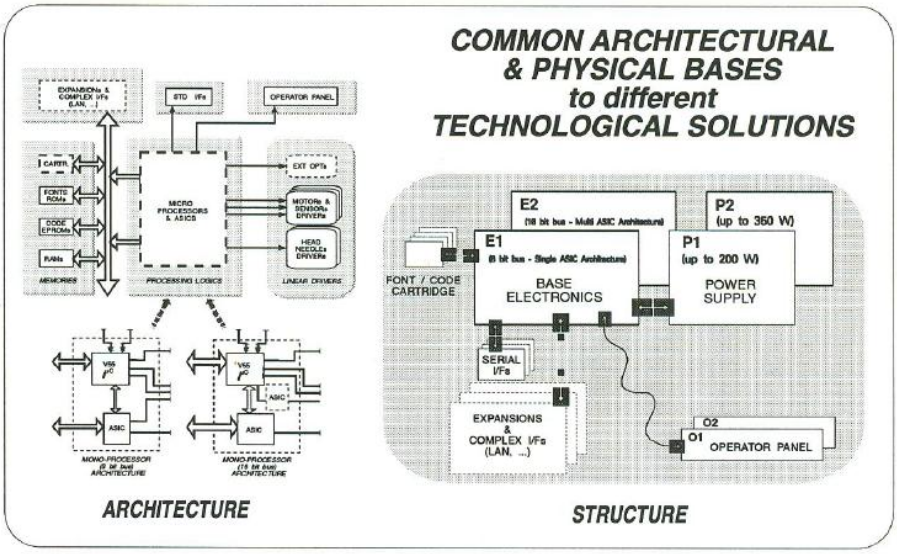
VEGA models use a new family of printheads, with technological solutions optimized for both cost and performance.

The modular design supports multiple options for dot size, needle count, and needle configuration.

AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE



ELECTRONICS



(Slide 26 Notes)

ELECTRONICS

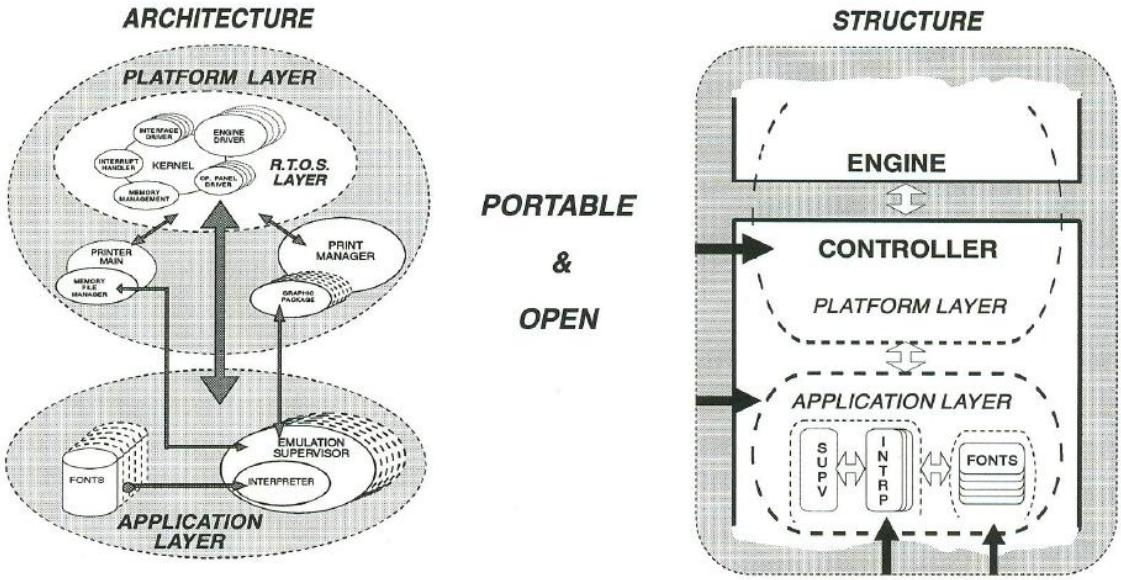
The VEGA family covers a broad performance range, requiring a wide spectrum of power and processing capabilities.

Here again, we addressed the cost/performance challenge by extending the modularity concept.

The electronics architecture is also modular, from logic, drivers, and sensors to main electronics, power supplies, operator panels, interfaces, and expansion boards.

AN INNOVATIVE APPROACH - THE VEGA ARCHITECTURE

SOFTWARE



(Slide 27 Notes)

SOFTWARE

VEGA software builds on the controller architecture developed for our laser printers.

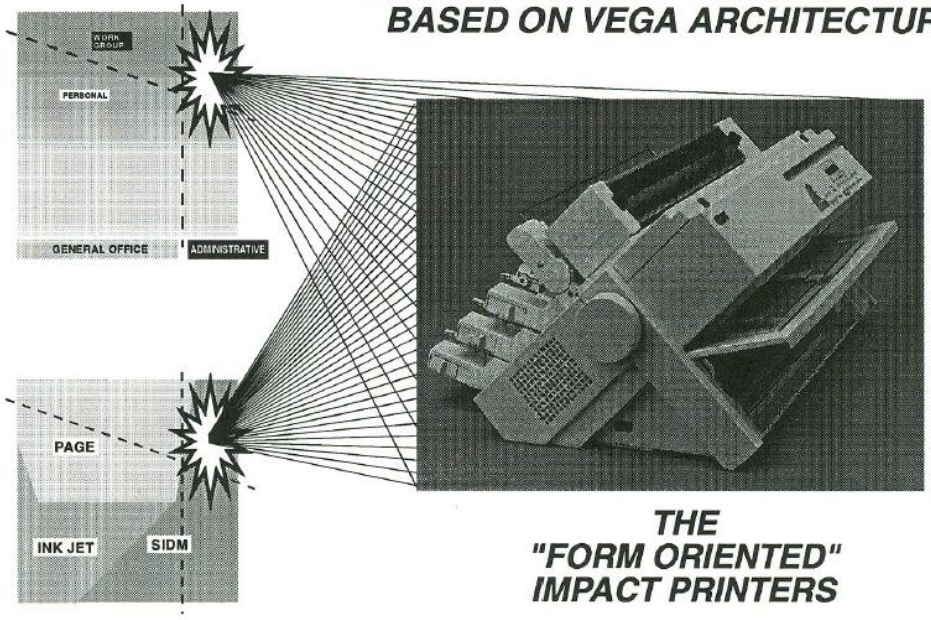
This makes it easy to move software modules across the different models in the family.

The software structure also enables efficient co-development activities with third parties.

Depending on the customization required, OEMs can develop a controller, interface module, or emulation module, or focus only on fonts, character sets, and operator-panel messages.

AN INNOVATIVE APPROACH

SIGNUM - *THE FIRST PRODUCTS BASED ON VEGA ARCHITECTURE*



THE "FORM ORIENTED" IMPACT PRINTERS

(Slide 28 Notes)

SIGNUM

The first released products based on the VEGA architecture are the recently launched Signum models from Bull. These will soon be followed by fully customized models announced by major Compuprint OEM customers.

This family is designed to meet the entire spectrum of future demands in SIDM (Serial Impact Dot Matrix) printing. The future of SIDM goes beyond simply preserving the past; it is about redefining the market around form-oriented printing.

VEGA is Compuprint's definitive response to this opportunity. We believe it represents the ideal platform for any organization looking to transition from legacy, high-end SIDM environments.

Thank you for your time and continued attention.